The Bulletin

OF THE

South Indian Medical Union.

Vol. IV. | APRIL 1932. | No. 4.

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UNION IS STRENGTH.

THE UNION STANDS FOR THE FOLLOWING POLICY.

1. That instruction covering all aspects of general practice shall form part of a student's curriculum.

2. That there shall be a right of access of general practitioners to the hospitals in their area with facilities for taking a responsible part in the work of the hospitals.

3. That public health clinics be staffed by the practitioners in the area.

4. That changes in the constitution of the Medical Council be made which will secure at least one half direct representation of practitioners in general practice.

5. That certificates from Registered Medical Practitioners shall be valid without *countersignature* by Government Medical Officer.

6. That the present system of examinations of varying standards, all qualifying for enrolment in the Medical Register, be abolished and that one general standard be substituted (thus bringing the medical profession into line with certain other professions.)

JOIN THE UNION.

BULLETIN

OF THE

SOUTH INDIAN MEDICAL ASSOCIATION.

APRIL 1932.

The Genesis of Pernicious Anaemia and its diagnosis.*

By Dr. K. Narayanamurthi, M.B., B.S.,

Research Scholar in Medicine.

Pernicious anæmia was originally described more or less correctly by Addison and the anæmia was named after him as Addisonian Anæmia. He found that this anæmia was severe and somewhat different from secondary types of anæmia. About the year 1868 Biermer and by 1876 Cohenheim discovered proliferative changes in the bone-marrow and they came to the conclusion that the severity of this reaction of the disease depended upon the severity of the anæmia. Biermer was the first to describe a severe anæmia associated with pregnancy but he could not say whether this anæmia was different from the anæmia in men. In 1894 Smart termed this anæmia as "Red corpuscular anæmia" as opposed to "Hæmoglobin anæmia" a term used for Chlorosis. Both the terms are quite unsuitable. From that time till a few years ago we were in the belief that the disease was due to an affection of the bone-marrow alone. During the last few years our knowledge of this disease has increased so much that we have at hand now various methods of diagnosing it. Hunter in the year 1900 brought out the important factor of oral sepsis in the causation of primary anæmia. His theory, so far our Indian patients are concerned, does not seem to hold good. Zadek in the year 1921 studied the condition of the bone-marrow in men during life by trephining long bones, and Peabody, adopting Zadek's method, found that the condition of the bone-marrow was different during a relapse and during the interval between two relapses. Everyone has agreed that Addisonian anæmia is of a hæmolytic type. Faust and Tallquist have shown that oleic acid and its salts are more hæmolytic than stearic acid and its salts. This observation seems to throw some light on the mode of hæmolysis taking place in pernicious anæmia. Excessive quantities of bilirubin in blood and of urobilin in urine are found in the disease. The third evidence, that was adduced to call Pernicious anæmia a hæmolytic one, was that large deposits of iron were found in all the internal organs. It is found possible to produce a severe type of anæmia in albino-rats, by splenectomy. In our laboratory about 28 splenectomies were done on rats and the anæmia that developed in them was studied in all its bearings. The anæmia that developed was a high grade anæmia and in all these Bortonella baccilliformis was invariably present. Their hæmoglobin came down from 120 to 30 per cent. and they showed identical symptom, such as extreme weakness, paleness, etc., which are also the commonest symptoms in man suffering from a true Addisonian anæmia. With the help of the department of pathology, sections of the various internal organs were made and in a few of them a deposit of ferruginous pigment was noticeable. Hunter regards this hæmosiderosis as an evidence to support his view that the essential pathological process in pernicious anæmia is hæmolysis taking place in the portal area. If this view

* A lecture delivered before the Meeting of the South Indian Medical Union held on 31—3—'32.

were correct then the administration of internal disinfectants ought to decrease this hæmolysis but clinical experience shows that it is not so. Further Rous and Larimore have shown conclusively that hæmolysis need not be limited to the portal area in order to result in hepatic hæmosiderosis.

Up to the present time the chemical nature of hæmosiderin and its exact fate in the body is not known. We are inclined to think that hæmosiderin is utilised in the manufacture of fresh hæmoglobin, for it is known that the iron, liberated when hæmatin is split up under experimental conditions, is deposited in the internal organs and not eliminated at all. In a few of our rats the iron content of the liver and kidneys was estimated and they showed a higher content as compared with the normals. The total amount of iron in the human body is on an average 3·2 grams of which 2·4 to 2·7 grams are found in the blood. Hueck says that the amount of iron visible microscopically corresponds with the results of chemical analysis. Whenever there is in the liver over 50 mgms. of iron per 100 grms. of dry liver tissue it can be recognised in stained sections. So far our figures point out a higher iron content in both liver and kidneys in the splenectamised rats. This line of investigation promises some hope but for the present this work is unpublished though enough material has been obtained.

In the year 1922 Price Jones drew attention to the increased size of the blood cells, which he said accounted for a high colour index. By this he proved that this type of anæmia was different from the other types of anæmia and named it " Megalocytic anæmia ".

Our knowledge of the disease has almost revolutionised after the discovery of the reticulo-endothelial system and our conception of the blood forming organs has extended further to include the liver, hæmo—lymph glands, etc. Ample experimental evidence of the hæmatopoietic function of the reticulo-endothelium was first brought forward by Elvidge in the year 1926. He has shown that intravenous injections of quartz particles in animals result in the appearance of a large number nucleated R. B. C. in the circulation without a concomitant anæmia. This represents the socalled blood crisis which we see in cases of pernicious anæmia in man. Subsequently Indian ink, carmine and other dye-stuffs were shown to possess the same properties. Thus it is found that pernicious anæmia is due to a disease of the hæmatopoietic system.

Chauffoard and others demonstrated young immature cells known as " reticulocytes " in large numbers in the blood of anæmic patients by vital staining. This staining is done by cresylblue.

Fenwick and Flint were the first to discover the atrophy of the mucous membrane of the stomach in individuals that died of pernicious anæmia. Kahn and Brasky observed that the mucosa of the stomach was not functioning as the result of atrophy. Later on Hurst adduced the theory of gastro-intestinal infection as the cause of pernicious anæmia, the infection finding its way into the gut on account of the absence of hydrochloric acid in the stomach. He did a number of test meals and found from them that achlorhydria precedes the development of true pernicious anæmia by many years and this condition may be found in several members of the same family. Thus achlorhydria has been brought into intimate relationship with the development of pernicious anæmia, but Hurst's theory of streptococcal infection does not seem to be

tenable. Whipple on his experimental animals improved the anæmia by the administration of liver. Subsequently, Minot and Murphy put dessicated liver in the market in the treatment of cases of pernicious anæmia. William B. Castle, Townsend and Heath (American Journal of Medical Science, 1930) postulated that the genesis of the disease is dependent upon an inadequate gastric digestion of protein thus permitting the development of a deficiency in the presence of a diet adequate for the normal individual. They carried out a large number of experiments and arrived at the following conclusions. The active constituent (which they called an intrinsic factor) which is found in the stomach normal individuals is absent in the secretion of any portion of the gastro-intestinal tract of pernicious anæmia patients. This substance they described as organic, and thermolabile, possibly an enzyme capable of interaction with a portein (the extrinsic factor). The reaction of this substance with the protein (the extrinsic factor) results in the production of a material, which has been found to have a marked hæmopoitic effect on subjects of pernicious anæmia. The lack of this particular substance (the intrinsic factor) in the gastric contents in pernicious anæmia is probably the essential defect leading to the development of the disease. They have further said that the existing tests for HCl. and Pepsin of the gastric juice are not useful in determining the presence or absence of this "intrinsic factor" which is essential for the stimulation of the hæmatopoietic system particularly that contained in the liver.

Dr. K. Venkatachalam Pillai, Research Officer in Pharmacology and myself are inclined to view that the essential stimulant to hæmopoises is a substance of the nature of a proharmone secreted in the stomach. This proharmone is absorbed and taken into the liver where it is converted into the essential harmone by the polygonal cells of the liver. This essential harmone is believed by us to be responsible for the general stimulation of the hæmopoitic system. The evidence we adduce for this is only on clinical basis. We hold that hog's stomach dessicated or otherwise is a much better preparation than the liver in the treatment of these recalcitrant types of anæmia. We do not mean that liver has no place in treatment of pernicious anæmia but what we say is that those cases that do not improve with liver are found in our experience to improve with ventriculin or genelin.

Liver and Ventriculin Therapy in pernicious anæmia though it altered our older conceptions of the disease, does not fully explain why some cases do not respond to either liver or hogs' stomach. To explain this condition the theory of vitamin deficiency came into much prominence. Col. Mac Carison and Dr. Lucy Wills brought out the important factor of vitamin A and C being deficient in servere cases of anæmia in pregnant rats and in pregnant women.

Certain resemblances between pernicious anæmia and sprue have been found to exist. The anæmia in sprue is indistinguishable from Addisonian Anæmia. Hurst has found streptococcus longus in the duodenal juice in some of his cases of sprue. Jone and Joyce in a study of 13 cases present some evidence that permicious anæmia is caused by the action of a hæmolytic or other micro-organism—the gall bladder being the focal source of sepsis.

Kahn and Torrey by their experiments on rabbits showed that toxins of B. welchii cause a severe anæmia. In our department of Bacteriology much work is carried on with this

organism with the kind help of Dr. Seshadrinathan and it is gratifying to note that this organism has been-isolated in a few of our cases of pernicious anæmia by using a special media. Work in this direction is proceeding on under Dr. Ramakrishnan, Professor of Bacteriology.

Another idea, put forward by Cederberg, is that hæmolysis, which occurs in animals dying of anaphylactic shock, is identical with blood destruction in pernicious anæmia. He regards that this anaphylactic shock is due to the absorption of improperly katabolised proteins from the gut. Faber followed up this idea and reported good results in the treatment of pernicious anæmia from gradual desensitization to various proteins.

It is interesting to mention the work of Iwao who was able to produce anæmia in his experimental animals by the injection of P. oxyphenylethylamine. This substance is interesting from the fact that it can be produced by the action of B. coli on cheese. It is found to be tyramine.

The alteration in the intestinal flora has been found to be responsible for the causation of the disease. Seyderhelm Lehmann, and Wichels by the experimental production of stenosis of the gut in dogs brought about severe hyper-chromatic anæmia in them. Meulengract recorded 5 cases of pernicious anæmia in men in whom a stricture of the intestines was found. They all state that in animals, as well as in men, when the bacterial flora of the small intestines come to resemble that of the colon, severe anæmia developes.

You are all aware that Di—Bothriocephalus produces in man a very severe type of anæmia resembling pernicious anæmia. Horses with gastrophylus larve infection also suffer from a severe grade of anæmia. Thus we see various factors operating in the production of severe grades of anæmia.

Eppinger and King have shown some relationship existing between the amount of hæmolysis and the degree of unsaturation of fatty acids in the blood. Evans in his monograph on this subject has adduced much evidence on this chemical phenomena in pernicious anæmia. He has pointed out that cholestral in blood of cases of pernicious anæmia is very much less than in normal individuals and it is also found to be constantly less than in any other morbid condition. My statistics so far as cholestral content of the blood is concerned are in agreement with Evans. Further he says that cholestral in the presence of lecithin inhibits the action of cobra-venom and remarks, " Is it possible that some normal or abnormal hæmolysin in the body, blood or some organ, possibly the spleen, unites with the lecithin of the cells and thus destroys them when the available cholestral in the plasma is lower than normal ? ". In the human body the only tissues that contain a greater amount of lecithin are the corpuscles and the sheaths of nerves and the two outstanding features of pernicious anæmia are hæmolytic jaundice and diffuse sclerosis of the spinal cord.

With the help of the Mendalian theory certain familiar characters of the disease can be explained; for instance, the genesis of normoblasts in a few cases and in some others their absence though the anæmia is very severe. Therefore the existence of normoblasts is not the criterion to call an anæmia pernicious or of the Addisonian type.

Briefly, pernicious anæmia is to be regarded as a disease due to a variety of causes occurring in such persons that have a particular type of hæmopoitic system. It is not a " primary anæmia " but probably represents the effect of

various agents, which in normal individuals would induce nothing or at most only a simple anæmia. In pernicious anæmia the defect lies in the manipulation of the proteins, and the stomach is the organ that is at fault just as in diabetes, the physiological defect lies in the metabolism of carbohydrates but the organ that is at fault is the pancreas.

Russel Haden describes a method for the determination of the volume index of the blood cells in the diagnosis of pernicious anæma. He remarks that the great variation in the Hb. readings in different laboratories makes the colour index a very uncertain diagnostic measure. The term volume index was introduced by Capps in 1904 to denote the average volume of the red cell relative to normal. Haden suggests another index, which he calls the 'Saturation index' which indicates directly the hæmoglobin content per unit volume compared with the normal. In normal individuals these indices are always one within limits of technical error. In secondary anæmia the indices are usually less than one and seldom greater than one. An increased volume index is a constant finding in pernicious anæmia. Price Jones phenomenon, Sehilling index, and the tests mentioned above are not of much use. They are not only very tedious but also give varying results. Proceeding further on the subject of diagnosis of the disease there is not one single test described hitherto to prove that an individual case is one of the pernicious type.

While investigating into this subject I made an attempt to demonstrate the toxicity of the sera of cases of pernicious anæmia. Serum and whole blood from cases of pernicious anæmia were injected into rats and guinea-pigs to study their toxicity. These experiments failed. It was then suggested that instead of animals, young seedlings might serve for the demonstration of the toxicity. The seeds of *Vignacastiang* were chosen for experimental purposes in collaboration with Professor P. J. Sundarao, of the department of biology, Medical College, Madras. We devised an apparatus by which it was possible to demonstrate that seedlings grown in the serum of pernicious anæmia were stunted in the growth of the radical as compared with the seedlings that were grown in the serum of normal subjects and the serum of secondary anæmia cases. To eliminate every source of error, co-efficients of the rate of growth were taken. It is gratifying to note that the results obtained from these experiments were in accordance with our clinical and laboratory findings. I have taken care to see that the cases of pernicious anæmia whose sera were used satisfied the following three tests, test meal results giving achlorhydria, an indirect positive van den Bergh test, and a high colour index.

Our experiments, on the phyto-pharmacological reactions of the serum, point out definitely to a toxic or a deficiency factor in the sera of cases of pernicious anæmia. Though we believe that our investigations are still in the experimental stage, we feel that, if more information is forthcoming, this single test alone will help to establish the diagnosis of the disease. This test is found to be negative with the sera of other cases as asthma, typhoid, etc.

The test is very simple and can be done by any medical man in a short time and without much inconvenience to the patient.

With the kind help of Dr. M. J. S. Pillai of the Government X-ray Institute, we tried to detoxicate the sera by ultra-violet radiations. Work in this direction is still proceeding and the results are yet to be ascertained.

In conclusion I must express my thanks to Col. G. E. Malcomson formerly Professor of Medicine and First Physician, General Hospital, Madras and Col. J. M. Skinner, First Physician and Superintendent, General Hospital, for their kind encouragement and suggestions. Thanks are also due to Mr. C. J. Jayadev, Demonstrator in Biology.

Lastly it is my pleasant duty gentlemen to thank you all for the opportunity you have given me this night to bring before you this subject for your consideration.

ASSOCIATION NOTES.

Guntur Medical Association.

DR. S. RANGACHARI'S ADDRESS.

The third anniversary of the Guntur District Medical Association was celebrated yesterday in the local George Coronation Town Hall when Dr. S. Rangachari of Madras presided. Dr. Rangachari arrived here by aeroplane.

At 4-45 p.m. a group photo was taken at the Town Hall and at 5 p.m. Dr. Rangachari was entertained at a tea party which was attended by a large gathering of officials and non-officials. Twenty-five ladies also attended the meeting.

The distinguished guest was garlanded by Major K. V. Ramana Rao, who, in his introductory speech, paid a tribute to Dr. Rangachari who was a self-made man in the profession and said his regard and affection for mofussil medical practitioners was well-known and his ideals and ideas of medical profession transcended all limits of narrow provincialism and the District Medical Association was fortunate in having Dr. Rangachari to preside over its first anniversary celebration.

DR. RANGACHARI'S SPEECH

Dr. Rangachari then addressed the gathering. After expressing his thanks for the cordiality of reception given to him, he referred to the medical profession, and said that intensive study of one or two subjects and specialisation were more important than merely possessing rudiments of knowledge in medicine. The Doctor said that out of his 27 years of practice he learnt only one lesson, namely, never to take advice from others. Experience alone, he said, would contribute to the success of doctors.

ANNUAL REPORT

Mr. Venkataswaralu, Secretary of the Association, read the annual report pointing out how, in spite of the present financial depression, the infant association, hardly three years old, had become a centre attraction to the medical practitioners in that district and how a reading room, fully equipped with the latest journals and magazines, was subserving the needs of doctors and he appealed for all possible material and moral support so as to make the institution more popular and efficient.

HEALTH OFFICER'S ADDRESS

Dr. Subrahmanyam, District Health Officer, delivered an instructive lecture on "Public Health, East and West." The adoption of certain improved methods in conserving individual and public health with special reference to cleansing of surroundings, water-supply, means of communication, the introduction and the utilisation of electricity and the promotion of personal hygiene, Dr. Subrahmanyam said, had contributed a good deal to the happy and decent public life in European towns, communities and cities. Referring to America, the speaker said that legislation was resorted to for improving public health. Dietic

conditious were improved in America as a result of persistent propaganda work. By improving surroundings and ensuring personal hygiene, ills such as malaria and cholera, could be easily checked. Among the factors contributing to public health, the doctor said three things were essential, namely, money, men and mind. Referring to local boards, the doctor said that local bodies in the Madras Presidency, were full of men and there was a clear indication of a dominant public desire to improve public health but the difficulty lay in the scanty supply of funds. In this connection, he said, private agencies could cope with the task and exhorted all to co-operate with the Public Health Department to promote public health.

Mr. A. S. P. Aiyar, I.C.S., the Additional District Judge, made a humorous speech expatiating upon the noble traits of Dr. Rangachari and the advances made in medicine.

Major K. V. Ramana Rao, the D.M.O., reviewed the conditions obtaining in the medical profession endorsing the views expressed by Dr. Subrahmanyam and appealed to the District Board President to promote public health in the district.

Dr. Rangachari once again thanked the members of the Association, including the general public, for the cordiality they had extended to him. Dr. Rangachari was the guest of Mr. D. Hanumantha Rao for the night and at 8 o'clock this morning left Guntur by aeroplane.

"The Hindu."
20—3—'32.

The Chettynad Medical Association.

The Second Anniversary of the above Association was celebrated at the Swedish Mission Hospital, Tirupattur, Ramnad District, on Saturday the 19th March at 4 p.m., under the Presidency of Major T. S. Sastri, I.M.S., District Medical Officer, Trichinopoly. There was a large gathering of the members and four of the Trichinopoly Medical Association also attended.

The proceedings began with tea and a group photo in honour of the retiring president of the year Dr. K. Srinivasaraghava Ayyangar, L.M. & S., District Medical Officer, Ramnad. At the business meeting the annual report of the year was read and unanimously adopted and the following office-bearers were elected :—

President :—Dr. F. Ysander, M.D.
Vice-President :—Dr. K. S. Srinivas, L.M. & S.
Secretary :—Dr. R. Narayana Rao, L.M.P.
Joint Secretary :—Dr. V. Shanmugham, L.M.P.
Treasurer :—Dr. T. V. Appaswami, L.M.P.

Extra members of Managing Committee :—Dr. M. Madhavi Ammal and Dr. M. G. Subramaniam, L.M.P.

At the general meeting Dr. T. S. S. Rajan, L.R.C.P., M.R.C.S., delivered a very instructive lecture on "Tonsillar Infection and the new method of treatment". The President, Major Sastri wound up the proceedings with his valuable remarks and advice. After the vote of thanks to the chair, the learned lecturer and the assembled guests, the function ended with a dinner party late in the night.

The Malabar District Medical Association.

A meeting of the Malabar District Medical Association was held in the Paran Hall, Calicut, on 20th February 1932.

Major Cox was proposed to the chair. In his introductory remarks he said he was happy to meet so many together here and that as diseases in different parts differ he was particularly interested to know about the diseases peculiar to this part.

After the minutes of the previous meeting were read and adopted, the letter of resignation of Dr. S. K. Pillay of his presidentship and membership of the Association, on account of his transfer out of the station, was read and accepted. It was proposed by Dr. A. P. Balaram that the association's thanks for his valuable services be recorded. Dr. V. I. Raman seconded this and it was passed unanimously.

Dr. V. Krishna Menon proposed that in the vacancy caused by the resignation of Capt. Pillay, Major Cox, I.M.S., be elected as the President of the Association. This was seconded by Dr. Balaram. Major Cox accepted the post with pleasure and it was passed with acclamations.

Dr. N. Achuthan, M.B., B.S., was then called upon to deliver his lecture on " Eclampsia ". From a statistical review of cases the lecturer said that the disease is much more frequent among Indians than other races. He dealt with the subject at great length and spoke on the incidence, period of onset, pathology differential diagnosis, etiology, pathogenesis, prognosis, and treatment of the disease. In dealing with the pathogenesis, he spoke in detail about Strognoff's ovular and neural theories and in the treatment of the disease he compared the Dublin and the Petersburg methods. An interesting discussion ensued in which several members took part.

The meeting terminated with votes of thanks to the lecturer and the president.

Resolutions passed at the 8th All-India Medical Conference.

1. That this Conference fully endorses the main recommendations of the Indian Medical Association in regard to the different provisions of the All-India Medical Council Bill, particularly (*a*) regarding the Preamble of the Bill—so as to not only provide for the maintenance of a register of qualified practitioners but also to establish a uniform minimum standard of qualification for all the provinces of India, (*b*) regarding the composition of the Council, namely, that the Council should have an elected President from the beginning and that the composition of the Council should be as follows :—

(i) Three persons to be nominated by the Governor-General-in-Council.

(ii) One person to be elected by the Provincial Committee from amongst members who have been elected to this body.

(iii) One person to be elected by the members of Senate or University Court of an Indian University with a Medical Faculty.

(iv) One person to be elected by the medical practitioners resident in a province in India and registered in a Provincial Medical Register and who possesses any qualification, granted or recognised by an Indian University or who possesses any recognised medical qualifications under amendment of Section 19 of this Bill.

(v) One representative of Licentiates registered in each provincial medical register.

(*c*) regarding reciprocity—the Indian Medical Council should be free to accept the medical degrees of those countries only which accord the same privilege of recognition to the Indian Medical degrees and that the British degrees should not be automatically recognised by inclusion in the second schedule.

2. That in view of the fact that the amendments proposed by the Indian Medical Association are fundamental to the successful working of the Bill, this Conference adopts them and authorises

the Indian Medical Association and other medical associations in India to take necessary steps to get these amendments accepted by the Legislative Assembly.

3. This Conference is further of opinion that unless these amendments are adopted, the medical profession would be justified in refusing to accept the Bill.

4. This Conference is of opinion that the statement to the press given by Sir Fazli Hossain is misleading, as the object underlying the Bill, as mentioned in the Preamble, is to establish a uniform minimum standard of qualification to be recognised by the provinces in British India and not (as stated by Sir Fazli Hossain) for the purpose of recognition "by other countries as conforming to international standards."

5. That this Conference strongly disapproves the custom of demanding countersignature of the Civil Surgeon on certificates granted by the registered independent medical practitioners, as it casts a great slur on non-official members of the profession.

6. That those Provincial Councils who have not yet introduced the system of Honorary Visiting Medical Officers in Government Hospitals and in teaching institutions should forthwith introduce the same.

7. That this Conference urges upon the Government the immediate necessity of placing the moffusil hospitals under the charge of Honorary Medical Officers, particularly in the interest of economy.

8. That this Conference emphatically urges on all medical practitioners in India to encourage the use of drugs, sera, vaccines, surgical dressings, surgical instruments and other appliances of Indian manufacture as far as possible.

9. That this Conference urges on Government the necessity of encouraging the development of drug farming in India.

10. That this Conference is of opinion—

(*a*) that the preliminary qualification for admission to all medical institutions should be the intermediate science examination certificate of different Indian Universities or its equivalent,

(*b*) that it is urgently necessary to improve the equipment and standard of education in the Medical Schools so as to approximate the same to that of the Medical Colleges of the University Standard,

(*c*) that in the meanwhile the Conference strongly recommends :—

(1) that the training of the Licentiates should be improved by

(i) extending the period of instruction in the Medical School to at least 5 years throughout India.

(ii) the better equipment of schools, and

(iii) the appointment of better qualified teachers therein,

(2) that facility should be given to the Licentiates to enable them with further supplementary training to appear at the University examinations for medical degrees, and

(3) that a Committee of eminent medical men be appointed by Government to go into the whole question and report at an early date.

11. (*a*) That this Conference is of opinion that the Universities of India should take immediate steps to make Pediatric medicine a subject for a special study with a definite curriculum,

(*b*) that this Conference is of opinion that it is high time that provincial and local administrations should pay immediate attention to organising health associations throughout the country for purposes, prrticularly, of spreading knowledge of general hygiene and maternity and child welfare and provide necessary funds for these activities of theirs and making popular these associations an essential point about these activities.

(*c*) that this Conference is of opinion that immediate provision should be made in Medical Colleges and schools for the scientific study of indigenous therapeutics and pharmacology by (1) establishing clinics, and (2) organising research work in indigenous drugs.

(*d*) that this Conference is of opinion that an Indian Pharmacopæa be compiled for India without further delay under the direction of a suitably constituted Committee on which members of the staff of the medical institutions and research workers doing research work on modern scientific lines should be strongly represented.

12. That this Conference urges the necessity on the part of Indian Universities to inaugurate education in Dentistry and secondly, that in the Indian General Medical Council Bill now before the Legislature a clause be added with regard to the registration of properly qualified dental surgeons.

14. (1) That the Government be asked to help financially and by expert advice all such village organisations as are working on scientific lines for combating malaria in Bengal and other places.

(2) That intensive anti malaria work be undertaken in selected areas to serve as models for all centres.

(3) That Government should encourage field work for the identification of the carrier species of mosquitoes in India and for the study of the habits of such mosquitoes.

15. That to procure adequate funds for the purpose of anti-malaria work this Conference urges upon the Government to earmark the sale proceeds of the Cinchona Alkaloid to be spent for the purpose of anti-malaria work alone.

16. That adequate and prompt anti-malaria work should be undertaken by the Health Department with honorary and voluntary organisations and where such are not available by subsidiary local practitioners.

17. That there should be efficient co ordination between Sanitary Department of the Government and its various other Departments which may interfere with the health of the population, by their respective works.

18. That this Conference urges upon the Government to allow all their plans for the construction of railways, excavation of canals, erection of dams or bunds, etc., to be submitted to the Sanitary Department to ascertain their views before giving final sanction.

19. That this Conference offers its grateful thanks to the Corporation of Calcutta for having permitted the use of the Town Hall for the holding of the Conference.

21. That this Conference is of opinion that the practice of realising a fee from hospital out-patients would operate as a great hardship upon the poor sufferers and urges upon the authorities to abandon such practice as far as possible.

22. That the recommendations made by the Conference which met at Simla in July 1930 to discuss the location of the Central Research Institute of India with regard to the constitution of the Governing Body of the Indian Research Fund Association be given effect to at any early date.

23. That this Conference learns with regret that no representatives of the independent medical profession have been taken on the Governing Body of the All India Institute of Hygiene, Calcutta, and that the Government be requested to add at least two distinguished members of the independent medical profession thereto.

24. That a copy of the above resolutions be forwarded to the Governing Body of the Rockfeller Foundation, the Government of India and the Governing Body of the Indian Research Fund Association and the Director of the Hygiene Institute.

25. That the All-India Medical Conference is of opinion that the system of taking in post-graduate honorary research workers in all the Research Institutes of India, as existsi n other scientic Departments of the Universities of India as well as in Europe and America, should be introduced as early as possible. It is also of opinion that research scholarship fromthe Indian Research Fund Association should be given to meritorious workers, who may subsequently be appointed as paid workers.

26. That this Conference is of opinion that the King George's Thanksgiving Fund for anti-tuberculosis work should be also provincialised.

BULLETIN

OF THE

SOUTH INDIAN MEDICAL ASSOCIATION.

APRIL, 1932.

The All-India Medical Conference.

All activities of the medical profession in this country have been almost till the other day under the auspices of the members of the various services in the employ of the Government. This was only natural since the great majority of the practitioners of modern medicine has been absorbed in the different services. When these medical men met together, discussion naturally centred round questions like reorganisation of the department, increase of pay, request for various additional allowances and a scramble among the various services for what are considered to be prize appointments in the department. In the last few decades, there has been an increasing number of medical men and women educated in the various institutions of this country and abroad who have preferred the more interesting work of ministering to the sick population untrammelled by the deadening influence of red tape and safe emoluments. These practitioners soon found that noble independence and keenness to serve the public, by themselves were not enough. They had to contend against popular prejudice which thought that all that was best in modern medicine was centred in the *services* and the *sircar*. Most of these practitioners found that much of their time was taken up by the all compelling need of finding a competent living. But some and a growing number of them set about thinking and very soon realized what was wrong with the medical policy of the Government. Dr. B. C. Roy's forceful address as the Chairman of the Reception Committee of the All-India Medical Conference held recently at Calcutta is the result of an acute realization of the evils of the medical policy of the land. We entirely agree with him that one of the obstacles to progress in the field of medicine in this country is the bogey of politics that is raised by those whose vision is cramped by "service." If only medical men in this country would keep the interests of the country and the common good of the profession before the interests of the mere individual or service the progress of the profession would be phenomenal, both in the science as well as in the practice of it. Looked at from this anglewe must confess that the profession all round is much to blame. Even if a fair number of those in the services like the present Surgeon-General with the Government of Madras or the present President of the local service association, could take a long-term view of the needs of the country and the profession there would be a rapid advance in the progress of the profession in the country. Similarly if a larger number of those in active practice outside the services would even vaguely realize that the profession is primarily meant for the benefit of the public and that he who would serve the public usefully should increasingly equip himself with knowledge, what could not be achieved by this country in the field of medicine! We wish the efforts of Dr. B. C. Roy and of others like him would help to create a new order of things and encourage more of our medical men to devote some part of their time and opportunities to the investigation of disease and not, merely, to rest content with aiming at a *successful practice.*

Dr. B. C. Roy takes the correct attitude towards the All-India Medical Council Bill which is engaging so much attention at the present time. He justly condemns the official aim of the bill. There is a pleasing vigour and

directness when he enunciates the correct object of an All-India Medical Bill. "Let us initiate proposals for developing our own institutions and maintaining them at high level, not for the sole purpose of their being accepted by other countries, not also because it would be in conformity with the "international standard"; but because the country demands it and because the medical profession has now woke up to its sense of responsibility." We make a present of this admirably clear statement to our medical pundits who now direct the policy of medical education of the Universities and the various provincial Governments.

If the address of the Chairman of the Reception Committee is short and forceful, that of the President is rather long, diffuse, and in some places characterized by looseness that is strange for a person of the emenince of Sir Nilratan Sircar. He discusses the All-India Medical Council Bill in some of its details pointing out the defects. This is unnecessary when the country is definitely opposed to the principles underlying the measure. In discussing medical education he earnestly wishes that the *status of the licentiates* will be improved by raising their education to a five years course. This is an instance of loose thinking we referred to above. And it is a species of argument that is very popular with many men. We want to increase the course to five years, not because that could improve the status of any one, but merely for the reason that it is impossible to cram into four years all that a modern medical student is expected to learn for qualifying. We want to raise the standard because the present standard is considered to be low. Informed opinion in the country desires the abolition of the Licentiates and not the improvement of their status. For, the status in society of the licentiate at present is in no way inferior to that of any other class of medical men. Indeed, the status of any medical man depends chiefly on his character, skill and achievement and not merely on the examinations he has passed. Sir Nilratan Sircar outlines a scheme which he considers to be a partial fusion of Western and Eastern systems of Medicine. If ever the scheme could be worked, it strikes us, the result would be not a happy blend but a staggering monster. The strongest protogonists of the ancient *systems* have definitely held forth that their *systems* are so unlike "Western Medicine" that the ancient and the recent can never coalesce. We believe that the Madras Government School of Indian Medicine is a result of that conviction. If the students of this school are taught modern Physiology and Anatomy, it is perhaps merely to show how little the ancient systems depended on these sciences. If the teachers of ancient medicine and their students occasionally sport a stethoscope it is probably only to demonstrate how little it could help. But Sir Nilratan Sircar's enthusiam for the product of this synthesis does not take him further than recommending it for adoption in what he is pleased to call "the lower grade medical schools" which are expected to train medical men fit enough to practise in the rural areas of India. We are sorry that the President of the Conference falls into the common error of the urban population which often assumes an arrogant superiority when devising schemes for the rural population. Whether the rural areas of India are inhabited by an inferior race or not, whether or not their other needs differ from those of the urban people, we cannot imagine that the people of rural areas are afflicted only by minor ailments or that their lives are of such little value that it is enough if they are attended to by inefficient and inferiorly trained medical men. No, the problem

of rural medical relief is the problem of training a larger number of medical men. And if this cannot be done at the present scale of expense, methods must be devised to impart medical education efficiently but more economically. In any case large amounts should not be wasted on extravagant buildings, and expensive establishment to train inferior medical men. Then again, his suggestions regarding public health policy are not very helpful. He obviously mistakes a costly public health department beginning from a fabulously paid Minister to an army of Health Inspectors for organisation of Public a healthy Health. The latter consists among others in the provision of adequate and wholesome water supply, protected as far as possible, provision for drainage, facilities for timely medical relief, sound elementary education and a decent means of living without chronic undernutrition. But to spend the little money that is available on Directors and Inspectors and then to plead proverty against the provision of elementary needs of public health would be highly foolish. And that would be the direct result of the organisation of a well paid army of Inspectors and Propagandists. We believe that in some of the States of America there is no regular public health department as obtains in this country. Those who talk of Public Health Departments and organisations would do well to verify this statement.

We have devoted some space for a detailed criticism of portions of the Presidential Address since we feel that the eminence of the person deserves our very respectful attention. Apart from these few flaws that we have pointed out, the address is worth careful perusal as it contains the considered views of so great an authority on many current problems of medical education, research and relief in this country.

Honorary Medical Officers and Study Leave.

At the present stage of evolution of the Honorary system for medical relief in this Presidency it is not necessary for any one to advocate its advantages to the country or to the medical profession. The system has been well tried and been found to work very satisfactorily from all points of view. Government have extended its scope and have increased the number of Honorary officers in the various hospitals of the Presidency. Two classes of officers have also been created, a Junior and a Senior class. This is as it should be for it is from the ranks of the Junior officers that Senior men will have to be recruited in the future.

Government should now aim at keeping these Honorary officers as efficient as possible both in the interests of the people and of the medical relief of the country. These men should take their place in the joint rank of the medical profession. In other countries we find that the men holding such appointments are the best men available. They are well qualified in their specialities and have added to their knowledge by travelling abroad and gaining as much experience as they could from other people and countries.

It seems to us therefore that it would be greatly advantageous to the interests of medical relief in this country if the members of the Honorary staff get a chance of travelling abroad and gaining experience in other countries. Government have an obligation not only to the poor who attend the hospitals but also to the general public who are largely dependent on private practitioners for their medical needs. The Honorary officers form part of a group who serve the public at large. Money spent on them therefore will

be well spent for it will return to the State in the shape of more efficient service to the general public who have a right to claim as high an efficiency as possible from their medical men.

Government have recognised the value of experience in other countries for they are spending a good sum of money on their paid medical officers in giving them study leave with pay and allowances. The Honorary officers cost nothing to the Government and they do as efficient work for them in their hospitals as their paid officers. Government should therefore extend the same privileges of travel abroad to these men. They would thus help to evolve a class of efficient practitioners and specialists who will serve the needs not only of the hospitals but the public at large.

Improvement in any department of work comes more quickly by competition, and a keenness in competition is more easily created amongst practitioners who have to earn their living by their own practice. Everything that tends to make them efficient improves them in their profession. This is bound to have its effect on their work in the hospitals.

Practitioners who live by their practice will find it very difficult to find the time and money, especially in the early days of their practice, to travel abroad. Our country is poor and our practitioners are also poor. They can therefore ill-afford the time and expenses of travelling to other countries. If Government could therefore extend the privileges of study leave with allowances to the Honorary staff also it would be a great inducement to them to travel out and profit by experiences in other countries. With better and wider experiences these men will be better fitted to occupy their various posts. These privileges will be necessary till such time as an efficient and a high grade 'post graduate' training is evolved in this country.

After five years of service as an Honorary Officer, one should have the privilege of obtaining study leave with allowances for periods extending from 6 to 18 months.

We earnestly hope that Government would consider such a scheme favorably.

GENERAL NOTES.

We are gratified to find that at long last a serious beginning has been made in handing over the professional work of the Government Royapettah Hospital to an Honorary Medical Staff. The idea started with the late Rajah of Panagal and it should be a matter of great pride to the present Minister in charge of the portfolio that the scheme has matured under his active and sympathetic guidance. The medical profession and the public owe this happy result to the untiring earnestness with which Surgeon-General Sprawson has worked out the details of the scheme. The present Surgeon-General is known for his zeal for economy and efficiency in the medical department. And his reasoned enthusiasm for the honorary scheme has enacted him to get over many obstacles that have been drawn across the scheme at various times.

We heartly congratulate the Honorary officers that have been selected to serve on this Hospital and we are confident that they would so use their opportunity to convince the public still further that an unpaid medical officer could serve the public as well and as efficiently as any other class of men.

* * *

The All-India Council Bill has now been formerly introduced in the Legislative Assembly. The measure has never been well received by the public. The recent All-India Medical Conference has condemned the principle underlying the Bill and has also offered detailed criticism on some of the clauses. In this the Conference has voiced faithfully the views of the non-official and may we venture to add also the official medical practitioners of the country. We hope that before the Bill becomes part of the laws of the land, many of its gross errors would be rectified.

* * *

The newly arrived principal of the Vizagapatam Medical College has lost no time before he broadcasted to the world that that institution is not inferior in equipment to any other medical college or school in the world. And he emphasised that he was speaking from personal world-wide observation. May we suggest that he should as quickly inform the authors of the contemplated All-India Medical Council Bill of the great blunder they have committed in omitting his college from the list of approved institutions.

Medical Education Criticised.

Twenty Years behind Requirements.

Dr. Chalmers Watson, opening a debate on medical education at the Edinburgh University Union in mail week, declared that there was an urgent need for reform of the present medical curriculum.

" It is now increasingly recognised," he said, " that a large proportion of the common diseases of everyday life, both medical and surgical, are really the end results of a long-continued neglect of some of the elementary laws of health, and that the only effective means of cure lies in their prevention. This makes it obligatory that much more attention be directed to the teaching of the principles and practice of preventive medicine.

" The continous study of the fundamental factors underlying the development of defective teeth, tonsils, and adenoids, gastric and duodenal ulcers, and the like, the premature onset of old age, and the prevailing malnutrition responsible for the increased maternal morbidity which is engaging public attention to-day, is essential. To this end more attention should be devoted to certain fundamental subjects, such as applied biology, the principles and practice of food and feeding, antenatal nutrition, and child welfare."

Dr. Watson declared that too few hours were spent in the medical wards, outpatient departments, or in dispensary practice. The present curriculum was from ten to twenty years behind modern requirements.

" The annually increasing large national expenditure, directed, with very limited success, to the end products of disease, without adequate attention to preventive measures, will sooner or later reveal, in relation to health questions, a nation's dilemma," said Dr. Watson.

" There is a good deal to be said for the suggestion that the reformation should be brought about under the sole direction of an educated layman interested in health questions, with a panel of three skilled general practitioners as asessors."

(*The Hindu*).

The Lure of Medical History

The Extra Academic Origin of Medical Specialties *

Obstetrics.—Obstetrics, now properly considered the third element of the triad of proper medical training, remained longest beyond the cognizance of the regular profession. But here again the revelation of a family secret must be noted as the determining cause in allowing the man-midwife to overcome the superstitions of centuries. The first book dealing with this subject was the "Rosengarten" of Eucharius Roesslin, written entirely for the midwives. Roesslin, city physician at Frankfurt, famous already for his treatment of syphilis, is supposed to have written the book at the direction of his exalted protectress, Catharine, Princess of Saxony, with the intent of giving some form of definite instruction to the ignorant midwives of the period. It appeared in 1513, and was probably the most successful medical book ever published if measuerd by the number of editions and translations. There must have been some two hundred editions within a little over a century, and it was translated into practically all languages, for the most part still as a guide for midwives, but written up at times for the regular profession, and more frequently written down in an appeal to the ignorant superstitions of the man and woman around the corner.

The English translation, under the tittle "The Birth of Mankynde," first issued in 1540, went through twelve or thirteen editions, and was published even after Harvey began his epochmaking researches on generation.

Of almost equal popularity was "La Commare," first edition 1596, the work of the Dominican monk, Scipio Mercurio, which took up the burden of instruction to midwives during the waning popularity of the "Rosengarten," and continued successful for nearly another century. There was a complete succession of male authors who considered this subject upon purely theoretical grounds, although it must be admitted that both Pare and Guillemeau, his son-in-law, describe personal experience in their books devoted to this subject, but this succession of theoretical writing by men was interrupted by a practical book offered from the pen of a woman, Louise Bourgeoise, who, in 1609 published her book on "Accouchments," dedicated to the Queen Mother, Marie de Medici, which detailed the position, presentation and length of labour of four children destined to become kings of France. Another midwife, who wrote up her practical experiences for the benefit of her class was Justine Siegmundin, who in a handsomely illustrated book, "Hofweh-mutter," first published in 1690, rose to much greater heights than her predecessors, and was surpassed in illustration only by another midwife, Madame de Coudray who, nearly a century later utilized the newly discovered color printing and illustrated her book with tinted copperplates showing position and presentation.

The employment of midwives was universal, and physicians and surgeons were called only when complications were found, and the consultants' principal methods of attack were the horrible mutilating operations fatal always to the child and usually to the mother. Some time in the early part of the seventeenth century a family secret again changed the course of the development of a branch of medicine; this "secret" was the obstetrical forceps invented by one of the Chamberlains, probably Peter, some

* Courtesy of California and Western Medicine.

time about 1620. This Peter Chamberlain was a member of the Guild of Barber-Surgeons; his son was admitted as a Fellow of the Royal College of Physicians in 1628, but dismissed from the Fellowship in 1629 for reasons which might be considered inadequate at the present time; another descendant Hugh Chamberlain, was made a Fellow in 1694, and obtained signal honors in the College and was considered the most eminent man-midwife of his period.

The definite progress of the time is well shown in this varying attitude of the College toward the possessors of the "secret" which had become more or less common knowledge by the end of the seventeenth century.

The immortal Harvey indicates in many places in his "De Generatione," 1651, familiarity not only with parturition, but also with the various conditions arising during pregnancy, and is to-day considered the father of the British School of Midwifery, and his discoveries in this field are placed by many authorities on an equal footing with his demonstration of the circulation.

The victory of the man midwife was not entirely won during this period, nor has it been won even to-day. The conflict in England, especially in the seventeenth and eighteenth centuries, gave rise to a hectic battle of pamphlets, caricatures, and much personal animosity, with science fighting against tradition, and the deep-seated feeling that a woman should only be attended by a woman is not yet entirely eradicated.

Orthopedics.—Orthopedics was definitely adopted into the surgical fold by Audrey, a professor of Paris, who wrote the first formal book on the subject about 1725, though the earlier popular barber-surgeons had by no means neglected the discussion of methods of correcting deformities. Pare, of course, included these conditions in his marvellous discussions of surgical problems, and he pictured methods of replacement of lost members of all sorts, including not only artificial noses, and ears, and hands, but even "yards." Fabricius of Acquapendente in his "Opera Anatomica" has a beautiful copperplate illustration of a brace whose complications and ingenuities might make even the most modern orthopedist envious. Even back of the barber surgeon stood the highly technical armorer, whose ingenous attempts to supply artificial hands and legs are marvels of mechanical ingenuity. Fracture boxes and complicated mechanical aids for the reduction of dislocations were a part of the attractive illustrations of even the earliest works of the barber-surgeons.

Laboratory Work.—The early prototype of the modern laboratory diagnostician is found in the uroscopist. It is quite true that "Seeing of Urines" was based upon extracts from the classic authors, especially Avicenna; but the popular appeal of this mystical method of diagnosis was so great that an immense literature, popular and professional, for and against, was printed throughout the entire sixteenth century, and it was only much later than this that the negative evidence concerning the value of the procedure prevailed and the method was frowned upon by the regular profession. So common was the custom in the early days of printing that the urine glass in the hands of the physician of the long robe became symbolic of the profession. Such an easy method of making a diagnosis was, of course, seized upon by the charlatans, and the mountebanks, and the booth of the urine seer was a part of every fair and

street carnival. In fact, in certain rural districts of England the old urine seer and his glass are still a part of the Country Fair. An anthology of the book written on this practice would disclose quotations from most of the learned writers as well as the poets, and so little change takes place in the minds of men that every year type jokes from the oldest time are revamped and told in the barber shops and smoking compartments, and one has recently been used even on the legitimate stage.

Shakespeare plays upon this custom in "Twelfth Night" and in "King Henry IV." Falstaff says:

"" Sirrah, you Giant, what says the doctor to my water?" To which the page replies, He says, sir, the water itself was a good healthy water, but, for the party that owned it, he might have more disease than he knew for."

So far as I know, no bibliography of this type of book has been written, and no earnest search has been made to determine even the number and classes of these books, nor even a discussion of the principles of division between those written by the professor for the profession, and the barber-surgeon for popular consumption, but there were at least fifteen editions of the first English book on this subject: "Here Begy/nth the synge of Ury/nes of all the couloures that/urynes be of, with the me/dycines annexed to euery/ uryne & euery ury/ne his urinel much/ profitable for euery/man to knowe." Each edition is known in very few copies, and the German popular books on this subject are equally numerous and equally scarce.

The microscope, too, was an invention entirely outside the range of medical thought. Though probably known to Roger Bacon in the thirteenth century, the microscope itself was rediscovered by a spectacle maker in Holland about 1620, and immediately put upon the market. Most of the early discoveries by means of this instrument were made because of the fascination of the instrument as a means of indoor amusement. Kircher, more priest than physician: Swammerdam, an assistant in his father's apothecary shop, and van Leuwenhoek, brewer's son and innkeeper, all made important discoveries by the use of this toy which have been absorbed in the framework of medical tradition. On the other hand, two physicians, Nehemiah Grew and Marcello Malpighi, contributed to the first great era of discoveries made by the microscope. These additions to medical knowledge were done in the latter quarter of the seventeenth century, and the first year of the eighteenth, and the microscope itself all through the eighteenth century was sold as an amusing toy, with prepared mounts of various small animals, vegetables, and minerals, for the amusement, and perhaps the education, of those attracted to the new and novel.

Chemistry.—Chemistry was the direct outgrowth of alchemy, which had its devotees even among those high in the profession, but whose greatest patron was the Emperor, Rudolph II, of Germany, who attracted many of the greatest alchemists of the time to his castle in Prague. In the vain but expensive search for potable gold, and the philosopher's stone, he spent a tremendous fortuue in providing sharpers of all types with apparatus, and opportunity, but as an unexpected outcome of his vain desires there emerged the true birth of chemistry as a modern science, through Libavius, who went to Prague to read on essay on "Aurum Potable" and

returned to Coburg to write his "Alchymia" in 1595, which is now regarded as the first systematic treatise in chemistry. This in turn led to an extravagant belief in the benefits of the new discovery, and it was exalted to a medical philosophy by the "Iatrochemists" of whom the founder and chief priest was Johan Baptiste van Helmont, first a Capucian friar, and only later in life a physician.

Anatomy.—In recent years there has been a tendency to rob medicine of the honor of developing proper early discoveries in anatomy. This is mainly due to publication of the lost drawings of da Vinci, which show him a most excellent anatomist, and perhaps with a knowledge of function and motion superior to Vesalius, Raphael, Michelangelo, and Rossi de Rossi, are known to have done dissections, which were used for drawings, engravings and paintings, but only for individual use, without any attempt to produce systemic anatomical investigations or records, so that in spite of these very attractive drawings and prints, the honor of making anatomy a part of medical science must still be given to Andreas Vesalius, who did everything that these artists had done, and in addition systematized his work and offered it in the form of a printed book, which is one of the most beautiful and important publications of all time.

Therapeutics.—In therapeutics many of the effective discoveries were made outside of the profession. The story of quinin is particularly interesting. First known as Peruvian bark, it was sent to France and Spain by the Jesuits and was exploited by them as a specific for ague, on the basis of the cure of the Countess of Chinchon, wife of the Viceroy of Peru. All modern methods of propaganda were used to promote the sale of the bark, which was then a monopoly of the Jesuits, and even a corner was established similar to but more successful than the modern attempts to form corner in grain products. It remained for Robert Talbor, an apothecary's apprentice, to hit upon the happy expedient of dissolving the bark in claret to make the administration more palatable. By a lucky chance he cured Charles II of England, who in turn recommended him to Louis XIV of France, and he was so successful there that his secret discovery was purchased by Louis and given to the world in a little book called "Pretologia," 1672. In the meanwhile, of course, Sydenham had conducted experiments with the drug, but when he wrote of it in 1668 he was without enthusiasm, but with greater experience in 1676 he had come to the conclusion that the bark was a specific for ague.

Digitalis also had an origin outside of medicine. While Withering brought it to the attention of the profession, his first knowledge of its efficacy was obtained from a neighbourhood woman herb doctor, who had had great success in treating dropsy with a concoction made up of all the herbs of the country side. Withering took his cue from her success, and carefully determined that, foxglove was the effective ingredient in her mixture, and in his book, "An Account of the Fox Glove and Some of Its Medical Uses," 1785, established digitalis on such a rational basis that but little has been added since, as to efficacy, indications for or mode of administration of this particular drug.

Many other drugs of vegetable origin were discovered by the herbalists, and other types of irregular practitioners. The doctrine of signatures, simply expressed, was that nature had prepared a sovereign cure for every disease which was to be recognized by

the initiated from some fancied similarity or symbol inherent in the plant. This school of healing was responsible for practically all investigation into the nature of vegetable drugs for many centuries, and found its final and greatest exponent perhaps in an early American quack, Thompson, whose ideas overwhelmed our United States during the first half of the last century. His book went through innumerable editions, and his ideas became the basis of the "eclectic medicine," a schism only recently disappearing from medical education.

Anesthesia — Laryngology.—Many of the more modern things now utilized in every practice were discovered outside of the profession. We owe anesthesia to a dentist, Morton, for in spite of investigations which may place the original discovery of the effect of ether in the hands of Hicks of England, or Long of Georgia, the publicity was obtained through the efforts of Morton, whose experiments at Harvard brought the method to the attention of the profession the world over. Laryngology is based on the discovery of the laryngoscope in 1855 by Manual Garcia, a Spanish singing teacher, resident in London.

Bacteriology.—Pasteur, the founder of bacteriology, was a chemist. Roentgen of X-ray fame was a physicist; the Curies, who brought radium to the attention of the world, had no fundamental interest in medicine, and although Ehrlich was a graduate in medicine, it is said that he obtained his degree by the narrowest of margins, and his interests as well as his discoveries were entirely in the field of higher chemistry. If to these might be added the discoveries important in our daily practice, made by the country doctor, it might emphasize the theme I hold. Koch was health physician in a small German town when he discovered the tubercle bacillus; Syms, a country practitioner, when he originated those methods which were the foundation of gynæcology. Mc Dowell was also a country practitioner, with imagination, who saw his way clear to invade successfully the lower abdomen to remove the ovary.

In contrast, the great discoveries in medicine were scarcely ever accepted at their true value by contemporary members of the profession. The publication of the "Fabrica" of Vesalius started the famous controversy with Sylvius which lasted for more than twenty years, and, in addition, there was the quarrel with Fallopius, Vesalius' immediate successor at Padua, and other quarrels equally vituperative although with men less prominent. Harvey is said to have lost his practice when he published the "de Motu Cordis," and most of the books reprinting his text during the next twenty years were published for the purpose of belittling and refuting his great discovery. Jenner was almost immediately embroiled in a controversy, the echoes of which revert to the present day in the numerous agitations against vaccination and other efforts of the anti-societies to embarrass the progress of medical investigation.

Strive as we may to prove otherwise, the fact remains that neither in the past nor at the present has medicine been as much a science as an art, and yet we are constantly priding ourselves on our science and neglecting the art of treating the emotionally unbalanced invalid who cares much less, as a usual thing, for the science of medicine than for the relief of his symptoms which have been helped in various times and places by methods, many of which I have shown you, which have definitely originated far from the constituted ideal of medical faculties.